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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/911,784	07/24/2001	Masaharu Yoshiyama	1503.65719	3902

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EXAMINER

PHAM, KHANH B

ART UNIT	PAPER NUMBER
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2177

4

DATE MAILED: 12/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/911,784	YOSHIYAMA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Khanh B. Pham	2177	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 June 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All   b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Specification*

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1, 4, 10, 13 and 16 are rejected under 35 U.S.C. 102(e)** as being anticipated by Chaudhuri et al. (US 6,223,171 B1), hereinafter "**Chaudhuri '171**".

**As per claims 1, 10,13, and 16**, Chaudhuri '171 teaches a database retrieving method, computer readable medium and apparatus for performing method comprising:

- “making a comparison between a cost required when retrieval is performed after an index corresponding to a retrieval condition is generated and a cost required when entire retrieval is performed” at Col. 23 lines 53-67 and Fig. 15;
- “generating an index corresponding to the retrieval condition if the cost required when the entire retrieval is performed is higher as a result of the cost comparison” at Col. 24 lines 4-6;
- “and retrieving a database by using the generated index” at Col. 1 lines 20-35.

**As per claim 4**, Chaudhuri '171 teaches the database retrieving method according to claim 1 as discussed above. Chaudhuri also teaches: “managing data of the number of accesses, a generation date and time, and an update frequency of the generated index” at Figs. 8-13; and “deleting the generated index according to management status of the data” at Col. 16 lines 35-45.

5. **Claims 1, 10, 13 and 16 are rejected under 35 U.S.C. 102(e)** as being anticipated by Tenorio et al. (US 2002/00830048 A1), hereinafter “**Tenorio**”.

**As per claims 1, 10,13, and 16**, Tenorio teaches a database retrieving method, comprising:

- “making a comparison between a cost required when retrieval is performed after an index corresponding to a retrieval condition is generated and a cost required when entire retrieval is performed” at page 1, [0006];

Art Unit: 2177

- “generating an index corresponding to the retrieval condition if the cost required when the entire retrieval is performed is higher as a result of the cost comparison, and retrieving a database by using the generated index” at page 1, [0006].

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims **1-2, 4-7,10-11,13-14 and 16** rejected under 35 U.S.C. 102(b) as being anticipated by Smith et al. (US 5,404,510 A), hereinafter “Smith”.

**As per claim 1, 10, 13 and 16**, Smith teaches a method, computer readable medium, and apparatus for performing method comprising:

- “making a comparison between a cost required when retrieval is performed after an index corresponding to a retrieval condition is generated and a cost required when entire retrieval is performed” at Col. 10 lines 60-67;
- “generating an index corresponding to the retrieval condition if the cost required when the entire retrieval is performed is higher as a result of the cost comparison

and retrieving a database by using the generated index” at Col. 12 line 65 to Col. 13 line 5;

**As per claim 2**, Smith teaches a database retrieving method, comprising:

- “making a comparison between a cost required when retrieval is performed after an index corresponding to a retrieval condition is generated and a cost required when entire retrieval is performed” at Col. 10 lines 60-67;
- “determining whether or not a first index which satisfies a condition wider than the retrieval condition exists among already generated indexes, if the cost required when the entire retrieval is performed is higher as a result of the cost comparison” at Col. 12 lines 32-65;
- “generating a second index which satisfies only the retrieval condition by using the first index, if the first index which satisfies the wider condition exists; and retrieving a database by using the generated second index” at Col. 12 lines 32-65.

**As per claim 4**, Smith teaches the database retrieving method according to claim 1 as discussed above. Smith also teaches: “managing data of the number of accesses, a generation date and time, and an update frequency of the generated index, and deleting the generated index according to management status of the data” at Col. 14 lines 1-25.

**As per claim 5**, Smith teaches the database retrieving method according to claim 1 as discussed above. Chaudhuri further teaches:

- “determining whether or not an already generated index that is applicable to an access process exists, if an access to the database is a data update or deletion” at Col. 6 lines 22-33;
- “determining whether or not access performance of the access process is degraded due to existence of the index, if the index exists” at Col. 1 lines 22-33;
- “and deleting the index prior to start of the access process, if the access performance is degraded” at Col. 6 lines 42-43.

**As per claim 6**, Smith teaches the database retrieving method according to claim 2 as discussed above. Smith further teaches: “managing data of the number of accesses, a generation date and time, and an update frequency of the generated index, and deleting the generated index according to management status of the data” at Col. 14 lines 1-25.

**As per claim 7**, Smith teaches the database retrieving method according to claim 2 as discussed above. Smith further teaches:

- “determining whether or not an already generated index that is applicable to an access process exists, if an access to the database is a date update or deletion” at Col. 6 lines 22-33;

- “determining whether or not access performance of the access process is degraded due to existence of the index, if the index exists” at Col. 6 lines 22-33;
- “and deleting the index prior to start of the access process, if the access performance is degraded” at Col. 6 lines 42-43.

8. **Claims 3, 12 and 15 are rejected under 35 U.S.C. 102(e)** as being anticipated by Chaudhuri et al. (US 6,169,983 B1), hereinafter “**Chaudhuri ‘983**”.

**As per claims 3, 12, and 15** Chaudhuri ‘983 teaches a database retrieving method, comprising:

- “making a comparison between a cost required when retrieval is performed after an index corresponding to a retrieval condition is generated and a cost required when entire retrieval is performed” at Col. 13 lines 20-40;
- “determining whether or not two or more indexes which satisfy the retrieval condition by being combined exist among a plurality of already generated indexes, if the cost required when the entire retrieval is performed is higher as a result of the cost comparison” at Col. 14 lines 15-40 and 51-52;
- “generating an index corresponding to the retrieval condition by combining the two or more indexes, if the two or more indexes exist” at Col. 14 lines 53-55;
- “retrieving a database by using the generated index” at Col. 14 lines 63-67.



***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claim 8 is rejected under 35 U.S.C. 103(a)** as being unpatentable over Chaudhuri '983 as applied to claims 3, 13 and 15 above, and in view of Chaudhuri '171.

**As per claim 8**, Chaudhuri '983 teaches the database retrieving method according to claim 3 as discussed above. Chaudhuri '983 does not explicitly teach: "managing data of the number of accesses, a generation date and time, and an update frequency of the generated index; and deleting the generated index according to management status of the data". However, Chaudhuri '171 teaches a similar method including the step of: "managing data of the number of accesses, a generation date and time, and an update frequency of the generated index" at Figs. 8-13; and "deleting the generated index according to management status of the data" at Col. 16 lines 35-45. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine both Chaudhuri's teachings in order to "assist the database administrator in identifying indexes that are rarely used and that therefore may be removed" as noted by Chaudhuri '171, Col. 16 lines 40-45.

11. **Claims 9 are rejected under 35 U.S.C. 103(a)** as being unpatentable over Chaudhuri '983 as applied to claims 3, 13, and 15 above, and in view of Smith.

As per claim 9, Chaudhuri '983 teaches the database retrieving method according to claim 3 as discussed above. Chaudhuri '983 does not explicitly teach the steps of: "determining whether or not an already generated index that is applicable to an access process exists, if an access to the database is a data update or deletion; determining whether or not access performance of the access process is degraded due to existence of the index, if the index exists; and deleting the index prior to start of the access process, if the access performance is degraded". However, Smith teaches a similar method including the step of:

- "determining whether or not an already generated index that is applicable to an access process exists, if an access to the database is a date update or deletion" at Col. 6 lines 22-33;
- "determining whether or not access performance of the access process is degraded due to existence of the index, if the index exists" at Col. 6 lines 22-33;
- "and deleting the index prior to start of the access process, if the access performance is degraded" at Col. 6 lines 42-43.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Chaudhuri '983 and Smith's teaching so that "unimportant and volatile indexes may be pruned from the system" (Smith, Col. 6 lines 40-45), and therefore improve the performance of the database by reducing the cost of maintenance these indexes.

**Conclusion**

12. The prior art made of record, listed on form PTO-892, and not relied upon, if any, is considered pertinent to applicant's disclosure.

If a reference indicated as being mailed on PTO-FORM 892 has not been enclosed in this action, please contact Lisa Craney whose telephone number is (703) 305-9601 for faster service.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh B. Pham whose telephone number is (703) 308-7299. The examiner can normally be reached on Monday through Friday 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E Breene can be reached on (703) 305-9790. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 746-7240.

Khanh B. Pham  
Examiner  
Art Unit 2177

KBP  
November 19, 2003

JEAN R. HOMERE  
JURY EXAMINER